

scendants of a world in which, owing to a decrease in temperature below the freezing point of water, that useful liquid will be replaced by alcohol!

There is a Scots proverb running thus:—"Mickle cry and little 'oo (wool)." The amount of "wool" in this work is surely insufficient for the "cry." Yet there are some suggestive passages, and the author has evidently spent much time over his problem.

A word in conclusion as to the "get-up" of the book. The reviewer, in reading it, felt that he must act as a proof-reader. There is hardly a page on which a misprint does not occur; and such lapses as "The only data available is the following:"; the words *uni-* and *tetra-*valent in one line; "to completely (*sic*) picture"; and the printing of almost every sentence as a paragraph, make the reader's task an ungrateful one.

Something, no doubt, may be accomplished in course of time when affinity constants have been numerically determined (and many are already known) to show that they, too, are periodic functions of the atomic weights; but Mr. Martin has not succeeded in pointing out the lines on which this goal is to be reached.

AN ORNITHOLOGIST'S JOURNALS.

Travels of a Naturalist in Northern Europe: Norway, 1871, Archangel, 1872, Petchora, 1875. By J. A. Harvie-Brown. 2 vols. Pp. xxii+541; with coloured plates and other illustrations and 4 maps. (London: T. Fisher Unwin, 1905.) Price 3l. 3s. net.

THE journals which compose the greater part of these two handsome volumes relate to three ornithological visits paid to Norway, Archangel, and Petchora about a quarter of a century ago, and the author good-humouredly anticipates their being regarded as "stale news" or "could kail het again." On this score, however, there was no need for an apology, for the author tells his story for the first time (apart from previous technical reports), and, besides, the interest of a naturalist's observations depends, not on their date (provided the date be given), but on their intrinsic worth.

As Mr. Harvie-Brown is an accomplished ornithologist, an enthusiastic faunist, and the author of some delightful and valuable books on the natural history of Scotland, it goes without saying that these journals contain some interesting scientific information and some picturesque narrative. But the trouble is that to discover these oases we have to traverse what seem to us dreary deserts of trivial and commonplace monotony, and we can hardly control our impatience by remembering that there had to be many trivial and commonplace days before the author found the nesting-ground of the little stint. What is published is just what was written down at the close of each day, and it follows that items which loomed large at the moment, such as the supper menu, appear of little importance to the callous reader, as doubtless to the journalist himself in retrospect at Dunipace. He got such a gorgeous

"bag" of birds—1019 skins and 1021 eggs from the Petchora hunt alone—that we can sympathise with his wish to live his hunting days on the tundra over again; we only wish that his recapitulation had not been so terribly *in extenso*. We are much interested to read how Mr. Seebohm came in one evening, "and with a triumphant thump laid on the table, first a Grey Plover, then a Snow Bunting, and then a Curlew Sandpiper; lastly, and most triumphantly—hurrah!—five Little Stints, long looked for, found at last"; but we cannot get up much enthusiasm over the bulk of the narrative.

The tour in Norway was more or less of a novelty in 1871, and much is related that is now familiar. Much has changed, but more remains the same, and one unchanging feature of which the journal affords abundant illustration is the human appetite.

The Archangel region had been but little worked by ornithologists when Mr. Harvie-Brown and (the late) Mr. E. R. Alston explored there in 1872, and they were richly rewarded. The journal becomes more interesting, though our attention is still distracted by Ernst Craemers's toothache, by the size of the packing-case for the birds, by Alston's loss of his big knife ("one made by Wilkinson, of London"), by the number of bowls of milk drunk, and so forth.

The most adventurous journey was that which Mr. Harvie-Brown and Mr. Seebohm took in 1875 to the region of the Petchora, where they were the first to find the eggs of the little stint in Europe. The author shows his powers in the graphic description of the locality and in his story of the discovery. We quote the description of the nest:—

"Rather untidy, rather rough and uneven round its rim, very shallow, sparingly lined with dry grasses and a little leaf or two, which may have been plucked by the bird as she sat in her nest. Round it, deep, spongy, but not wet, yellow moss, the dark green leaves and empty calices of the Arctic Bramble, a tuft of round-stemmed green sedge with seed; a little further off, the now flowerless plants of the sweet-scented dwarf rhododendron, and bunches and patches of long white grass and plants of a small cotton-grass, and other plants and grasses, of which we shall bring home specimens for identification."

There is a fine plate of stint's eggs, and a careful comparison of the little stint and Temminck's stint. Another beautiful plate contrasts the eggs of grey plover and golden plover.

In the course of the Petchora journal we find some notes on habits which are interesting, *e.g.* those relating to the fact that birds which do not perch, or but rarely perch, in other countries, perch in Petchora. Thus, on one occasion, by patiently following up the "tick tjuck" of the common snipe, Mr. Harvie-Brown had the satisfaction of seeing this wader "perched on the tip-top of one of the gaunt branchless blasted larches, quite 70 feet from the ground." Curlews, gulls, snow-buntings, &c., were also seen perching.

"It is, we think, undoubtedly forced upon them by the great flooding of the country, and what was originally forced upon them has become a favourite habit."

The journal for July 7, 1875, gives an artificial table for distinguishing the downs of ten species of ducks, and that is the kind of minute detail more of which we would gladly have welcomed. It is also to the point to be told of the curious antics of the Arctic (Richardson's) skuas:—

"The birds often alighted within fifteen yards of me, raised the wings over the back—when they did this the white or dusky quills showed like a patch upon the raised wings—shammed lameness and sickness, and stood reeling from side to side as if mortally wounded. If I followed them, they continued to try and lead me off; but if I again approached the nest, they flew boldly towards me, and stooped repeatedly."

There are some vivid pictures of the tundra and its birds, there is an interesting account of the Samoyèdes, and there are some instructive notes on the habits both of birds and men, for all of which one is grateful, wishing only that there had been more of this wheat and less of the journalistic chaff.

PRACTICAL SEA-FISHING.

Practical Sea-Fishing. A Handbook for Sea Anglers.

By P. L. Haslope. Pp. 274; illustrated. (London: Upcott Gill, 1905.) Price 3s. 6d.

SEA fishing is not a new form of sport, nor is it a subject which has been neglected by authors. We have several excellent works on it, such as "Sea Fishing" by "John Bickerdyke" in the Badminton Library series, and "Sea Fishing on the English Coasts" by Aflalo, so that a new book requires some justification for its production.

The work under review is perhaps worthy of a place in the sea fisherman's library, but it is, in our opinion, in no way fitter to occupy that position than either of the books already mentioned. It is obviously written by a practical sea-fisherman who has tested most, if not all, of the methods of rod and line fishing which he recommends; but it is as obviously written by a man whose experience has been mostly confined to the south coast, as south coast methods are much more often referred to than those of other parts of the country.

The author does not, however, appear to be so conversant with some of the methods of net-fishing which he discusses as he is with those of rod and line fishing. For instance, he considers the otter-trawl "a much more manageable net" for the amateur than the beam-trawl, a point we think open to doubt. It is true that the otter-trawl is more easily stowed away on board, but we think that its advantage over the beam-trawl for the amateur ends there, especially if the vessel is not a steamer. The difficulty of getting the otter-trawl to spread out and of getting it to fish properly is only known to those who have tried, and we should certainly recommend the amateur to use a beam-trawl, which, it is true, may capsize when being lowered, but otherwise will always fish when down.

When Mr. Haslope touches upon natural history or the habits of sea-fish he is clearly not so much at home as when he is discussing methods of capture.

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For instance, he refers to the angel fish, *Rhina squatina*, as a species of ray. He mixes up *Atherina presbyter*, the sand-smelt, and *Osmerus eperlanus*, the true smelt, and says "the Atherine, or sand-smelt, is the variety generally met with" (p. 100). In speaking of the sand-eel, he says:—"Any not required for bait should be fried and eaten, as they form a delicious article of food when in roe, but are not so good in winter" (p. 52). In our experience the sand-eel breeds in the winter; but perhaps Mr. Haslope means that after they have spawned they are not so good. He says of the grey mullet that "they feed chiefly on some kinds of sea-weed and decaying vegetable matter" (p. 95). It is true that algæ are occasionally, and perhaps often, found in the stomachs of grey mullet, but we should put down the staple food of the species as being animal. If we recollect rightly, in the aquarium at the Plymouth laboratory these fish are fed chiefly upon nereid worms. Day says that they are very destructive to molluscs and minute Crustacea, and that they also eat larvæ and ova ("Brit. Fishes," I., p. 234).

The English of the book is not all that can be desired, and badly arranged sentences are far too common. For instance, "In form this fish is very slender and its shape has some resemblance to that of a large sand-eel, which enables it to pursue its prey with great rapidity" (p. 50). "Great quantities of these crabs are taken in trammels and the shell on the back is so sharp and rough that it quickly cuts the twine, sometimes damaging the nets almost beyond repair. They are generally thrown away or used as manure for the gardens" (p. 60).

The directions as to skinning a ray are exceedingly involved:—

"To skin a Ray, remove a small portion with a sharp knife and grasp it with an old cloth in the left hand. This affords a firm hold, and by its means the whole skin can be readily stripped off. Meanwhile hold the fish firmly with the right hand, making with a knife a hole, or an incision, to enable the fingers to obtain a firm grip. Leave it upon the board in the open air with the flesh side upwards, and when dry it will have attained the consistency of horn, &c. . . ." (p. 68).

We prefer the old books on the subject of sea fishing, although, as we have said, the practical advice in the present work is thoroughly sound.

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MATTER AND FORCE.

(1) *Molecular Forces and Newtonian Laws.* By Alex. Clark. Pp. 237; illustrated. (Glasgow: W. and R. Holmes, 1905.) Price 3s. 6d. net.

(2) *Explication mécanique de la Matière, de l'Électricité et du Magnétisme.* By M. Despaux. Pp. 210. (Paris: Félix Alcan, 1905.)

(1) "BY deductions from the Newtonian Laws of Force and Motion the Author accounts for all the facts of Magnetism, Electricity and Chemical Affinity and proves their identity with gravitation" (extract from circular of publisher). We ourselves do not think that the author is successful in his attempt;